

## Message Text

PAGE 01 NATO 02368 01 OF 03 230915Z  
ACTION EUR-12

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UNCLAS SECTION 1 OF 3 USNATO 2368

OES FOR CRAWFORD

EO 11652: N/A  
TAGS: NATO, TGEN  
SUBJECT: NATO SCIENCE COMMITTEE: ANNUAL REPORT TO NORTH ATLANTIC  
COUNCIL

SUMMARY: SCIENCE DIVISION CIRCULATED THIS WEEK ANNUAL REPORT  
TO THE COUNCIL FOR 1976 BY THE NATO SCIENCE COMMITTEE (C-M(77)28),  
WHICH WILL BE CONSIDERED AT BY NAC AT ITS APRIL 27 MEETING.  
REQUESTED: GUIDANCE. END SUMMARY.

1. THE ANNUAL REPORT FOR 1976, WITH ANNEXES, HAS BEEN MAILED  
TO THE DEPARTMENT. TEXT OF DOCUMENT FOLLOWS:

ANNUAL REPORT TO THE COUNCIL FOR 1976 BY THE NATO SCIENCE  
COMMITTEE

### 1. INTRODUCTION

THE NATO SCIENCE COMMITTEE IS PLEASED TO PRESENT ITS  
SECOND ANNUAL REPORT TO THE COUNCIL, IN WHICH IT WILL GIVE A  
BRIEF ACCOUNT OF ITS VARIOUS ACTIVITIES IN 1976 WHICH IT HOPES  
WILL CONTINUE TO ENJOY THE CONFIDENCE AND SUPPORT OF THE COUNCIL.

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PAGE 02 NATO 02368 01 OF 03 230915Z

EVER SINCE THE SCIENCE COMMITTEE WAS CREATED IN 1958, IT HAS,  
THROUGH THE SCIENCE PROGRAMME, ENDEAVOURED TO CREATE THE RIGHT  
CONDITIONS FOR MAINTAINING EXCELLENCE IN SCIENCE AND TECHNOLOGY  
IN ALLIANCE COUNTRIES. THE COMMITTEE FIRMLY BELIEVES THAT  
TECHNOLOGICAL PROGRESS IS DEPENDENT UPON A THRIVING BASIC  
SCIENCE WHICH PAST HISTORY HAS AMPLY DEMONSTRATED TO BE THE  
PRECURSOR OF LATER DEVELOPMENT AND APPLICATIONS. IN PROMOTING  
COLLABORATION IN BASIC RESEARCH AMONGST THE ALLIES, THE COMMITTEE  
ENABLES ACTIVITIES TO TAKE PLACE WHICH, IF PURSUED PURELY  
NATIONALLY, WOULD PROVE MORE EXPENSIVE AND LESS EFFICIENT. IN

THIS WAY, THE BENEFITS OF CO-OPERATION ENRICH AND STRENGTHEN THE RESEARCH AND DEVELOPMENT EFFORTS OF THE MEMBER NATIONS.

## 2. THE WORK OF THE SCIENCE COMMITTEE

THE COMMITTEE RECEIVED 290 M B.FR. IN 1976 AN INCREASE OF 6.2 PERCENT WITH RESPECT TO 1975, WHICH LED TO SOME CONTRACTION OF ITS PROGRAMME IN REAL TERMS.

THE FIVE ACTIVITIES PROMOTED BY THE COMMITTEE WILL BE BRIEFLY DESCRIBED HERE, AND WE WILL THEN GIVE A MORE DETAILED ACCOUNT OF ONE OF THEM, THE RESEARCH GRANTS PROGRAMME, TO OFFER AN EXAMPLE IN SOME DEPTH OF WHAT THE COMMITTEE AIMS TO DO.

### THE ACTIVITIES

2.1 THE FELLOWSHIP PROGRAMME PERMITS SCIENTISTS TO BE EXCHANGED BETWEEN THE NATIONS OF THE ALLIANCE. THE PROGRAMME IS OPERATED BY THE VARIOUS NATIONS, BUT BY BEING CENTRALLY MONITORED BRINGS A CROSS FERTILIZATION OF THE SCIENTIFIC WORK OF THE NATIONS WHICH WOULD BE MOST COMPLEX TO ARRANGE ON A BILATERAL BASIS. THERE WERE 568 FELLOWSHIPS AWARDED IN 1976, THE MAJORITY OF WHICH HAD A DURATION BETWEEN 9 AND 12 MONTHS. ABOUT 70 PERCENT OF THE FELLOWS WERE BETWEEN 26 AND 35 YEARS OF AGE.

THIS PROGRAMME IS MUCH ESTEEMED BY THE MEMBERS OF THE UNCLASSIFIED

PAGE 03 NATO 02368 01 OF 03 230915Z

ALLIANCE WHO WISH TO HAVE A BROADENING AND DEEP TRAINING GIVEN TO THEIR YOUNG SCIENTISTS.

IT HAS BEEN FOUND THAT THE DIFFERENT COUNTRIES USE THE FELLOWSHIPS WITH DIFFERENT EMPHASSES, SO THE COMMITTEE IS ENGAGED IN A FULL REVIEW OF THE DIFFERENT PATTERNS OF FELLOWSHIPS TO ENSURE THE MAXIMUM VALUE OF THE PROGRAMME.

2.2 ADVANCED STUDY INSTITUTES WERE ESTABLISHED TO ENABLE SCIENTISTS, PARTICULARLY STUDENTS AT GRADUATE OR DOCTORAL LEVEL, TO GET TOGETHER, NORMALLY IN ISOLATED SURROUNDINGS, TO HEAR LEADING WORKERS LECTURE IN DEPTH ON THEIR WORK OR GIVE REAPPRAISALS OF A FIELD OF SCIENTIFIC ENDEAVOUR.

IN 1976 A TOTAL OF 39 ADVANCED STUDY INSTITUTES WERE HELD WITH APPROXIMATELY 4,000 SCIENTISTS PARTICIPATING. DURING THE PAST YEAR 25 VOLUMES OF PROCEEDINGS FROM THE INSTITUTES WERE PUBLISHED IN THE NATO ASI SERIES. DURING 1976 A TOTAL OF 44 OUT OF 117 APPLICATIONS FOR ASIS WERE APPROVED FOR 1977, SHOWING THE GREAT PRESSURE UPON THIS PROGRAMME.

UNCLASSIFIED

PAGE 01 NATO 02368 02 OF 03 230952Z

ACTION EUR-12

INFO OCT-01 ISO-00 CIAE-00 PM-04 INR-07 L-03 ACDA-10

NSAE-00 PA-02 SS-15 PRS-01 SP-02 USIA-15 TRSE-00

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UNCLAS SECTION 2 OF 3 USNATO 2368

2.3 THE SPECIAL PROGRAMME PANELS ARE CREATED BY THE COMMITTEE FOR CERTAIN AREAS WHICH AS A RESULT OF A CAREFUL STUDY HAVE BEEN DEEMED WORTHY OF SPECIAL INTERNATIONAL EFFORT. THE PANELS SUPPORT INNOVATIVE PROJECTS INCLUDING RESEARCH GRANTS, SYMPOSIA, EXCHANGE VISITS, SPECIAL STUDIES, ETC. IN ADDITION TO THE FIVE ONGOING PROGRAMMES IN MARINE SCIENCES, SYSTEMS SCIENCE, HUMAN FACTORS, ECO-SCIENCES AND AIR-SEA INTERACTION, A MAJOR INNOVATION HAS BEEN THE ESTABLISHMENT OF A NEW MATERIALS SCIENCE PANEL. THIS HAD ITS GENESIS, IN PART, IN A STUDY MADE BY A SPECIALLY SET UP STUDY GROUP ON "RATIONAL USE OF POTENTIALLY SCARCE METALS" WHOSE REPORT HAS HAD A VERY LARGE CIRCULATION, AND WAS CONSIDERED SUCH AN OUTSTANDING CONTRIBUTION THAT A LONGER TERM INITIATIVE WAS REQUIRED TO CONCENTRATE INITIALLY ON THE CONSERVATION OF SCARCE RESOURCES AND THE MORE EFFECTIVE USE OF ABUNDANT ONES.

2.4 THE SENIOR SCIENTISTS PROGRAMME IS A SMALL, BUT USEFUL FUND GIVING FINANCIAL SUPPORT FOR SENIOR SCIENTISTS TO PAY VISITS TO COLLEAGUES IN OTHER NATIONS OF THE ALLIANCE IN THE GENERAL FURTHERANCE OF THE COMMITTEE'S AIM. THE PROGRAMME IS AIMED LARGEY AT STRENGTHENING INSTITUTIONS IN THE NATO MEMBER COUNTRIES.

2.5 THE RESEARCH GRANTS PROGRAMME WILL BE DEALT WITH IN MORE DETAIL IN THE NEXT SECTION.

UNCLASSIFIED

PAGE 02 NATO 02368 02 OF 03 230952Z

### 3. THE RESEARCH GRANTS PROGRAMME

THE SPECIFIC AIM OF THE NATO RESEARCH GRANTS PROGRAMME IS TO STIMULATE AND ENCOURAGE CLOSE COLLABORATION OF INDIVIDUAL RESEARCH GROUPS, IN TWO OR MORE COUNTRIES, WHICH ARE ENGAGED IN SCIENTIFIC RESEARCH IN RELATED AREAS.

THE PROGRAMME CONTRIBUTES TO THE DEVELOPMENT OF FUNDAMENTAL SCIENCE AND TECHNOLOGY IN THE NATO COUNTRIES IN LINE WITH THE STATEMENT MADE BY NATO HEADS OF GOVERNMENT IN 1957:

"WE SEEK TO INCREASE THE EFFECTIVENESS OF NATIONAL

EFFORTS THROUGH THE POOLING OF SCIENTIFIC FACILITIES  
AND INFORMATION AND THE SHARING OF TASKS."

SINCE THE PROGRAMME WAS INTRODUCED IN 1960 A TOTAL OF  
1278 PROJECTS HAVE BEEN FUNDED UP TO DECEMBER 1976. FOR 1974  
AND 1975 THE FIGURE AT ANNEX I SHOWING THE FREQUENCY OF  
CO-OPERATION BETWEEN THE MEMBER COUNTRIES UNDER THIS PROGRAMME,  
STRESSES ITS UNIQUE ROLE VERSUS OTHER REGIONAL PROGRAMMES.

THE ABSOLUTE SUM OF MONEY SPENT IN THE PROGRAMME IS  
MODEST IN COMPARISON WITH NATIONAL RESOURCES, BUT THIS BELIES  
ITS EFFECTIVENESS. THE POSSIBILITY OF CARRYING OUT CO-OPERATIVE  
RESEARCH BETWEEN SCIENTISTS IN MEMBER COUNTRIES OF THE ALLIANCE  
(OR INDEED ANY NATIONS) IS HIGHLY LIMITED. NEVERTHELESS,  
RESEARCH IS DONE MOST EFFECTIVELY THROUGH SUCH COLLABORATION,  
EITHER DUE TO THE DISPOSITION OF RESOURCES, OR IN THE CASE OF  
HIGHLY SPECIALIZED TOPICS TO THE PLACES WHERE EXPERTS WORK.  
THE PRESSURE ON THE RESEARCH GRANTS PROGRAMME IS A MEASURE BOTH  
OF ITS SUCCESS AND EFFECTIVENESS, AND ALSO REGRETTABLY OF THE  
DIMINISHED RESOURCES WHICH THE COMMITTEE FINDS AT ITS DISPOSAL.  
THE DIAGRAMS AT ANNEXES II AND III SHOW THE TRENDS IN NUMBERS  
AND VALUES QUITE CLEARLY. IN RECENT YEARS, THE NUMBER OF  
SCIENTISTS APPLYING FOR FINANCIAL SUPPORT FROM NATO HAS INCREASED  
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PAGE 03 NATO 02368 02 OF 03 230952Z

RAPIDLY; IN 1976 THE NUMBER OF APPLICATIONS WAS FOUR TIMES THE  
AVERAGE ANNUAL NUMBER RECEIVED DURING THE FIRST TEN YEARS OF THE  
PROGRAMME. UNFORTUNATELY, SINCE 1970, THE BUDGET HAS NOT  
INCREASED IN REAL TERMS. THE PRESENT DEMAND CAN ONLY BE MET  
BY REDUCING THE LEVEL OF FUNDING FOR EACH PROJECT AND BY IMPOSING  
SEVERE CRITERIA FOR THE SELECTION OF PROJECTS. THE AVERAGE SIZE  
OF A RESEARCH GRANT HAS CONSEQUENTLY FALLEN DURING THIS PERIOD  
FROM \$7,300 TO 3,500 AND THIS DOES NOT TAKE ACCOUNT OF THE  
EFFECTS OF INFLATION.

SERIOUS CONSIDERATION SHOULD BE GIVEN TO THE POSSIBILITY OF  
ENLARGING THE RESEARCH GRANTS PROGRAMME. IF THIS IS FOUND TO BE  
IMPOSSIBLE, THE MEMBER COUNTRIES SHOULD BE ENCOURAGED AT LEAST  
TO TAKE STEPS TO FACILITATE THEIR SCIENTISTS TO TACKLE  
IMPORTANT RESEARCH PROBLEMS IN COLLABORATION WITH SCIENTISTS IN  
OTHER MEMBER COUNTRIES SO THAT RESULTS MAY BE ACHIEVED MORE  
EFFECTIVELY AND ECONOMICALLY.

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PAGE 01 NATO 02368 03 OF 03 231022Z  
ACTION EUR-12

INFO OCT-01 ISO-00 CIAE-00 PM-04 INR-07 L-03 ACDA-10  
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UNCLAS SECTION 3 OF 3 USNATO 2368

TO GIVE SOME FLAVOUR OF THE PROGRAMME WE CAN MENTION TYPICAL  
PROJECTS IN THE FOREFRONT OF RESEARCH, SUCH AS:

- "DNA REPLICATION AND CHROMOSOME STRUCTURE AND  
SEGREGATION IN BACTERIA AND EUKARYOTES"

INVOLVING LABORATORIES IN THE US, THE UK AND GERMANY; AND LARGE  
MULTINATIONAL GEOPHYSICAL RESEARCH PROGRAMMES SUCH AS:

- "A STUDY OF THE EARTH'S CRUST, PROCESSES AND MATERIALS,  
AT 3.8 BILLION YEARS"

WHICH ENGAGE SCIENTISTS IN DENMARK, CANADA, NORWAY AND THE UK;  
TO MORE APPLIED RESEARCH PROJECTS SUCH AS:

- "THEORETICAL AND EXPERIMENTAL RESEARCH ON NORMAL SHOCK  
BOUNDARY LAYER INTERACTION AT LOW SUPERSONIC MACH  
NUMBERS"

WHICH IS A CO-OPERATIVE PROJECT BETWEEN THE US, BELGIUM AND FRANCE.

PARTICIPATION IN THE PROGRAMME BY PROMISING YOUNG  
SCIENTISTS, SENIOR SCIENTISTS OF WORLD RENOWN INCLUDING NOBEL  
PRIZE LAUREATES, SHOWS THE INTEREST TAKEN IN IT AT ALL LEVELS OF  
COMPETENCE, AND THE REPUTATION THE PROGRAMME HAS IN THE SCIENTIFIC  
UNCLASSIFIED

PAGE 02 NATO 02368 03 OF 03 231022Z

WORLD.

RECOMMENDATION: THE COUNCIL IS INVITED TO NOTE THIS REPORT.

3. THIS REPORT IS REGULAR REVIEW OF SCIENCE COMMITTEE  
ACTIVITIES WITH SPECIAL EMPHASIS ON THE RESEARCH GRANTS  
PROGRAM. WE RECOMMEND THAT THE REPORT BE NOTED AND  
SUGGEST FOLLOWING CONTINGENCY TALKING POINTS:

-----1) WE WELCOME THE CONCISE SECOND ANNUAL REPORT OF  
THE SCIENCE COMMITTEE SUBMITTED BY PROFESSOR OZDAS, AND  
WE COMMEND THE COMMITTEE FOR THE VIGOROUS AND WIDE-RANGING  
PROGRAM IT SUPPORTS. WE ARE PARTICULARLY PLEASED THAT  
A SPECIAL PANEL ON MATERIALS SCIENCE HAS BEEN SELECTED, AND  
WE LOOK FORWARD TO ITS WORK ON WAYS TO SUBSTITUTE MORE ABUNDANT,  
RENEWABLE RESOURCES FOR RARER, NON-RENEWABLE ONES.  
IN THE REPORT, PROF. OZDAS NOTES THAT IN 1976, THE INCREASE  
IN THE COMMITTEE'S BUDGET WAS NOT SUFFICIENT TO PREVENT SOME

CONTRACTION OF ITS PROGRAM IN REAL TERMS. IT IS ESPECIALLY REGRETABLE THAT THE RESEARCH GRANTS PROGRAM HAS BEEN FORCED TO REDUCE ITS GRANTS TO DRASTICALLY. WE HOPE THAT MEANS WILL BE FOUND AT LEAST TO RECOUP THE GROUND LOST TO INFLATION SO THAT THE COMMITTEE'S EXCELLENT PROGRAMS CAN CONTINUE WITHOUT FURTHER CUT-BACKS.

-----2) WE NOTE THAT DURING ITS FEBRUARY MEETING, THE SCIENCE COMMITTEE DISCUSSED HOW BEST TO CELEBRATE ITS 20TH ANNIVERSARY IN SPRING 1978. THE UNITED STATES STRONGLY SUPPORTS THE IDEA TO COMMEMORATE THE TWENTIETH ANNIVERSARY WITH A SPECIAL SYMPOSIUM. THAT MILESTONE WILL GIVE THE ALLIANCE THE OPPORTUNITY TO underscore THE IMPORTANCE OF SCIENCE AND TECHNOLOGY IN SHAPING WESTERN SOCIETY AND ITS FUTURE, AND TO CONSIDER NEW DIRECTIONS THE NATO SCIENCE PROGRAM MIGHT TAKE.

4. ACTION REQUESTED: GUIDANCE IN TIME FOR APRIL 27 NAC  
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PAGE 03 NATO 02368 03 OF 03 231022Z

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